

CLAIMS

1. Power semiconducting device made from a semiconducting material epitaxied on a stacked structure, characterised in that:

- the stacked structure comprises a layer of semiconducting material (13, 103, 203) transferred onto a first face of a support substrate (11, 101, 201) and fixed to the support substrate by an electrically insulating layer (12, 102, 202), the support substrate comprising electrically conducting means between said first face and a second face, the transferred layer of semiconducting material acting as an epitaxy support for the epitaxied semiconducting material (14, 15 ; 104, 105 ; 204, 205, 210),

- means (16, 17 ; 117, 118 ; 217, 208) of electrically connecting the device are provided, firstly on the epitaxied semiconducting material, and secondly on the second face of the support substrate, an electrical connection (19, 109, 209) through the electrically insulating layer and said electrically conducting means of the support substrate electrically connecting the epitaxied semiconducting material to the electrically connecting means (17, 117, 217) provided on the second face of the support substrate.

2. Device according to claim 1, characterised in that the electrically conducting means of the support substrate (11, 101, 201) are composed of the support substrate itself made of an electrically conducting material.

3. Device according to claim 1, characterised in that the epitaxied semiconducting material comprises several layers with a different doping (14, 15 ; 104, 105 ; 204, 205, 210).

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4. Device according to claim 1, characterised in that the support substrate (11, 101, 201) overdoped on the side of the interface on which the electrically insulating layer (12, 102, 202) is provided.

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5. Device according to claim 1, characterised in that the electrically conducting means of the device comprise at least one Schottky contact (108).

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6. Device according to claim 1, characterised in that the electrically conducting means of the device comprise at least one resistive contact (16, 17 ; 117 ; 208, 217).

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7. Device according to claim 1, characterised in that the support substrate is made from a semiconducting material.

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8. Device according to claim 7, characterised in that the support substrate (11, 101, 201) is made from a semiconducting material chosen from among SiC, GaN, AlN, Si, GaAs, ZnO and Ge.

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9. Device according to claim 1, characterised in that the material used to make the electrically

insulating layer (12, 102, 202) may be chosen from among SiO_2 , Si_3N_4 and diamond.

10. Device according to claim 1, characterised in
5 that the transferred thin layer of semiconducting material (13, 103, 203) is made from a material chosen from among SiC, GaN, AlN, Si, ZnO and diamond.

11. Device according to claim 1, characterised in
10 that the epitaxied semiconducting material is chosen from among SiC, GaN, AlGaN, InGaN and diamond.

12. Semiconducting circuit, characterised in that
it combines at least one power semiconducting device
15 according to any one of claims 1 to 11 and at least one semiconducting device that is not electrically connected to the second face of the support substrate.